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House-cleaning Made Easier

HOW TO MAKE HOUSECLEANING simpler and easier and at the same time get full service from the materials used in the furnishing and care of the house, are the problems discussed in this bulletin. The scarcity of labor and the high cost of materials have made these questions increasingly important to the housekeeper. The methods here suggested are based both on the well-tested experience of practical housekeepers and on the results of scientific studies in saving labor in the household. Attempt has been made to explain the reasons behind the methods described and to give definite, concise directions that any one can follow.

Contribution from the States Relations Service

A. C. TRUE, Director

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HOUSECLEANING MADE EASIER.

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CONTENTS.

HOUSECLEANING need not be the bugbear it has long been regarded in many households. If the work is carefully planned, if the kind of furnishings that are easy to keep clean are chosen and handled in the right way, and if provision is made for keeping all the dirt possible out of the house, there will be no need for the upheavals that result in discomfort to the entire household. Moreover, this systematic housecleaning saves labor in the end and is economical of the materials used in the furnishing and care of the house.

Almost every housekeeper has a more or less fixed routine of work, which might be called her plan. Oftentimes, with this plan as a basis, the housecleaning can be so organized that the housekeeper can save herself much time and many steps. In these days, when competent household labor is at a high premium, it is wiser economy than ever to make "the head save the heels."

To keep clean rather than to make clean is a thoroughly practical working principle. This means daily tidying of the rooms in constant use, distributing the cleaning, especially the heavy kinds, through the week, and removing dirt not only frequently but thoroughly by methods that have been proved good according to both scientific and practical standards. All the members of the household can help if only by keeping their own possessions in order and putting things that they use in place in good condition.

What kind of furnishings the house has and how the house itself is arranged and finished have much more effect on the work of house-

cleaning than many persons realize. In many cases just a few changes will soon pay for themselves in time and energy saved. For instance, durable waterproof finish or a covering such as linoleum for the floor in the kitchen and pantry and removable rugs and smoothly finished floors in the rest of the house will prove themselves an economy. Doing away with superfluous shelves and moldings, filling up cracks and crevices in which dirt lodges, and arranging adequate storage places will also help.

Keeping dirt out of the house, or "preventive" housecleaning as it might be called, is well worth the effort. Much dirt is blown in from dusty roads, especially in summer when windows and doors are open, and it is to the housekeeper's interest to see that the roads about her home are oiled or at least regularly sprinkled, either by the community or by the individual residents. When dust can not be laid outside, it can sometimes be stopped at the doors and windows. Removing the dirt regularly from window sills, porches, steps, and walks helps in this, as do also screens covered with cheesecloth or other material through which air will pass, but not dust and soot. Such screens are particularly useful in pantries and storerooms, for doors and windows near the ground against which dirt of all sorts is blown, or in some climates in bedroom windows at night, where they serve the added purpose of keeping out dampness as well as dirt. Muddy or dusty shoes and clothing are another source of dirt in the house. Much of this can be kept out by doing away with dirt walks and bare ground near the house, by insisting that mats and scrapers be used outside the doors, and by providing special places just inside where muddy rubbers and boots and coats may be left.

A good arrangement is to have the men of the household coming in from work or the children from play with dirty, muddy clothes, enter the living rooms of the house through a passageway or small room where they can clean or leave their work clothes or outside wraps. The kitchen is not the room for such cleaning if any other place is available.

IMPLEMENTS AND MATERIALS FOR CLEANING.

No matter how carefully the housecleaning is organized, it can not be done easily and quickly without suitable cleaning tools and materials. The ideal arrangement is to have a complete set stored in orderly fashion in a convenient, well-ventilated closet. Whether few or many kinds are needed, it is economical to buy well-made, durable tools and keep them in good condition and grouped together if possible.

The initial cost of implements of good quality may be a trifle greater than those of poorer grade, but substantial ones gen-

erally give longer and better service and are more economical in the end. Before buying an especially expensive cleaning device or one used only occasionally, such questions as the following should be considered: Will it be used enough to justify the cost? How much care in cleaning and storing will it require? Will it really save time and energy? Will it make some especially disagreeable task less unpleasant? A few well-chosen implements give better service and require less care than a large collection bought haphazard.

TOOLS.

The following list gives some of the desirable cleaning tools and their uses:

Brooms and brushes.—(1) Corn broom for carpets and rough surfaces, such as concrete, brick, and stone.

(2) Soft-hair brush for smooth floors and floor coverings, such as wood, tile, linoleum, oilcloth, and cork carpeting.

(3) Wall brush of lamb's wool, or loops of soft cotton twine, or soft bristles. A bag of cotton flannel slipped over the broom may take the place of a wall brush.

(4) Weighted brush with short bristles for polishing waxed floors. Under no circumstances should this brush be allowed to become oily, but it may also be used in polishing oiled floors if carefully covered with a piece of woolen carpet, heavy flannel, or burlap.

(5) Whisk broom for general use.

(6) Scrub brushes of various sizes for cleaning unfinished wood, sinks, etc. A long-handled one will be found especially convenient for floors (fig. 1).

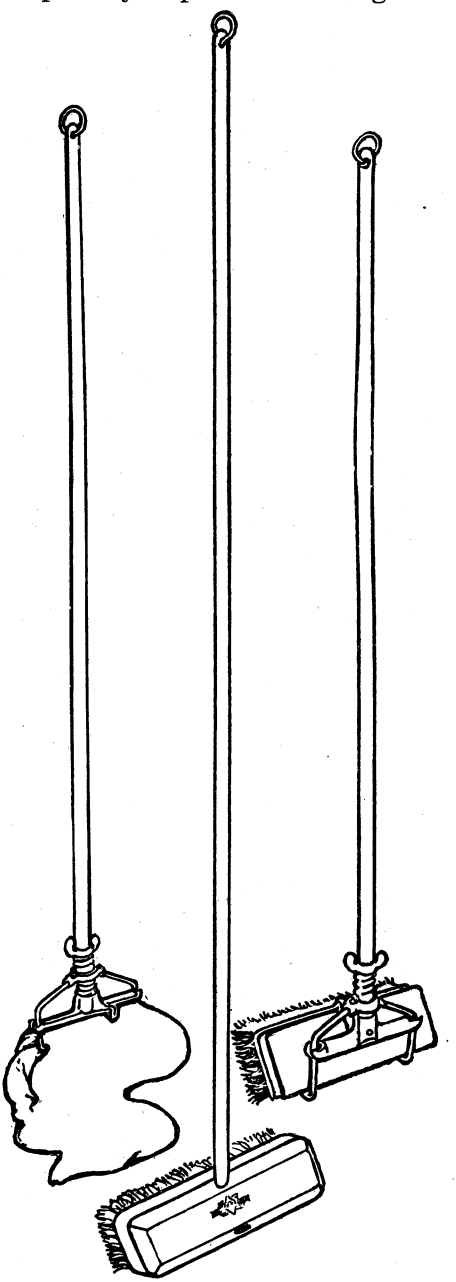

FIG. 1.—Long-handled scrub brushes. These, as well as long-handled mops, save time and effort. The type on the right can be adjusted to hold either a brush or a mop.

(7) Paint brushes or special brushes of various shapes and sizes for upholstery, reed furniture, and carved surfaces.

(8) Radiator brush for cleaning between pipes.

(9) Refrigerator brush, with flexible wire handle, for cleaning drainpipe.

(10) Long-handled spiral brush or tongs, and prepared soap paper, for cleaning water-closets.

FIG. 2.—Long-handled dustpan. This saves much stooping, and is considered an indispensable piece of equipment by some housekeepers.

Mops.—Wet mop for floors that are to be washed with water. A convenient form has soft, loosely woven cloth fastened to the handle by a flat metal clasp. A mop wringer fastened to a pail saves the worker much stooping, keeps the hands from the water, and removes more water from the cloth than would be possible by hand wringing.

Dry mop either untreated or oiled. The latter holds the dust better and renews the finish on painted, varnished, or shellacked floors, but should not be used on waxed surfaces.

Dustpan.—The edge should be firm and should come in direct contact with the floor, and the side to which the handle is attached should be high enough and so shaped as to prevent dirt from falling out. A long-handled dustpan does away with some stooping and is considered convenient by many (figs. 2 and 3).

Dusters.—A duster should be soft and should shed neither lint nor ravelings; it holds the dust better if dampened or oiled. Silk and chamois are excellent for use on highly polished surfaces. A duster may be moistened by passing it through steam; by wetting one corner of the cloth, rolling it up, and letting it stand for a short time; or by wringing together one dry cloth and one that has been wrung out of water. A dust cloth may be oiled by applying a few drops of kerosene or light lubricating oil on one corner, rolling the cloth, and letting it stand until the oil has spread evenly. Cotton waste and paper are good substitutes for dust cloths in cleaning dirty, greasy surfaces. Feather dusters should not be used, except perhaps just before sweeping, for they scatter but do not remove dirt.

Carpet sweepers.—Many good kinds are on the market and are effective for taking up surface dirt. A hand-power combination carpet sweeper and vacuum cleaner takes up surface dirt and to some extent sucks up fine particles.

Vacuum cleaners.—All vacuum cleaners suck up fine dust and dirt, and many are now equipped with brushes that take up coarse dirt and lint also. Good ones clean thoroughly and without scattering the dust into the air. They are perhaps most efficient when run by electricity or motor, for in many cases the hand cleaners require two persons to operate them, one to work the handle and the other to direct the nozzle.

Carpet beaters.—These may be of wire or of either flat or round reed. Those of flat reed are least hard on the carpet fibers.

Pails or buckets.—Galvanized iron or fiber pails are light in weight and durable; the former are cheaper.

Besides these tools and a liberal supply of paper and cloths, various materials are used to loosen the dirt and make it easier to remove. All these cleaning materials or agents should be used sparingly. This is not only economical of the cleaners but less likely to injure the surfaces cleaned. Some of those most commonly used are listed below.

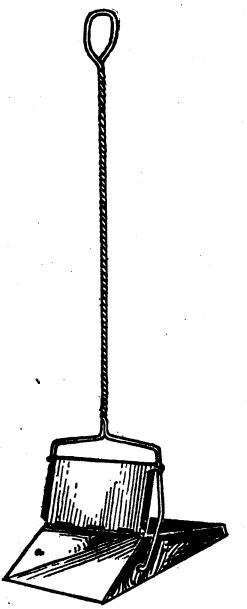

FIG. 3.—Another type of long-handled dustpan. As the pan is lifted it closes automatically, thus preventing the dust swept into it from falling out.

MATERIALS.

Water.—This is by far the most common cleaning material. Hot water loosens dirt more easily, but it is more likely to injure finishes and fabrics than lukewarm or cold water. Water should not be allowed to stand on floors or woodwork nor to get into cracks or seams; it should, in fact, be used very sparingly and in most cases wiped off at once.

An abundant supply of water piped through the house and a good drainage system for carrying away waste are of first importance in making housecleaning easier, as well as for the health and general comfort of the household. Simple, inexpensive systems and their installation are described in other bulletins of this series,[1] as are also ways of softening hard water for household use.[2]

Soap.—This is used to loosen the grease that holds the dirt to fabrics and finishes. A mild soap—that is, one with no free alkali—is less likely to injure finishings and colors than a stronger one. A soap solution makes suds more quickly and cleans more evenly and safely than soap in cake; a quantity may be made at a time, and bits of soap may be used up in this way. One pound of soap and three quarts of water are heated slowly until the soap is dissolved and then the solution is placed in broad-mouthed bottles or jars, for use as

[1] U. S. Dept. Agr., Farmers' Bul. 927, Farm Home Conveniences. U. S. Dept. Agr., Farmers' Bul. 941, Water Systems for Farm Homes.

[2] U. S. Dept. Agr., Farmers' Bul. 1099, Home Laundering.

needed. Flaked and chipped soaps dissolve more quickly than cake soap. Several kinds are now on the market, and hard cake soap may be chipped at home by being rubbed over a grater.

Soap may be made at home from lye and waste fat, and the directions given on the lye container will generally be found satisfactory. Homemade soaps, however, are likely to contain free alkali and should be used with caution, especially on delicate and colored fabrics, and on paint, varnish, or other finishes.

Ammonia, borax, and sal-soda (washing soda).—These alkalis are used both to soften hard water and to loosen dirt. Concentrated ammonia bought at a drug store and diluted at home by using about 1 part ammonia to 7 parts water is usually more economical and satisfactory for general cleaning than the dilute form sold as household ammonia. Borax is least likely to injure delicate fabrics, but is the most expensive of these three alkalis. Washing soda is bought in coarse powder form and should be thoroughly dissolved in water before using. A bottled "liquid soda" made by boiling 1 pound of soda and 1 quart of water in an old kettle is convenient, but as it has only one-half the strength of dry soda, twice as much must be used in a given amount of water.

Lye, caustic potash, caustic soda.—There is much confusion regarding these materials and their uses. Correctly speaking, lye is caustic potash, but the material sold as lye is almost always caustic soda. Caustic potash may usually be obtained at drug or chemical supply stores. Caustic soda, which is very much cheaper, can be bought (as lye) of almost any grocer. Both are used in soap making, caustic potash in making soft soap, and caustic soda in hard. Both are also occasionally used to dissolve grease in cleaning. They are very injurious to the skin and to most finishes, and must be handled with great care.

Oxalic acid.—This is used to bleach stains on wood and to clean copper and brass. It is usually sold in the form of crystals, 1 ounce of which may be put in an 8-ounce (half pint) bottle of water. This amount of water will not dissolve all the crystals, but to be sure of having a strong (saturated) solution there should be some undissolved crystals. The liquid solution may be poured off as needed and diluted with water to any desired strength. Oxalic acid is a poison and should be so labeled and kept where children can not get at it.

Gasoline and benzine.—These are used to dissolve grease and sometimes to control insects; they are so inflammable and explosive that the fire laws of many States allow only very small quantities to be kept in a house. When either of them is used in cleaning, it should be put in a small bottle and kept well corked, except when the liquid is actually being poured out. The bottle should not be opened in a room in which there is a fire or a gas, oil, or candle flame, or in bright sunshine. Only a little liquid should be poured out at one time.

Kerosene.—This is used to cut grease and loosen dirt, and sometimes to repel insects.

Oils.—Various kinds of oils are used to renew the finish on shellacked, varnished, and oiled surfaces. Cloths moistened with linseed oil are especially liable to spontaneous combustion and should be either destroyed immediately after use or kept in a tightly covered fire-proof container. Light mineral oils, such as are used for lubricating motors, are less dangerous in this respect and are also cheaper than linseed oil. They may be diluted with eight or ten times their volume of kerosene or gasoline. When the latter is used the mixture is, of course, highly inflammable and must be treated as carefully as pure gasoline.

Turpentine.—This is used to dissolve paint, varnish, and wax. It is inflammable and should not be brought near a flame.

Absorbent powders.—These include fuller's earth, French chalk, and corn meal, and are used to absorb grease from fabrics and finishings and to prevent freshly spilled liquids from soaking into fabrics.

Whiting, rouge (peroxid of iron), rottenstone, bath-brick, and pumice.—These abrasives, or frictional agents, are used for scouring tarnish and stains, and for polishing. The different kinds vary in fineness, hardness, and the shape of their particles, and different grades of the same kind vary in fineness. The finer and softer ones, such as fine whiting (Paris white) and rouge, are, of course, least likely to scratch a soft surface and injure a high polish or glaze. Abrasives are mixed with water, oil, soap, acid, or alkali, or whatever combination of these is most effective for a particular purpose. Most commercial polishes are mixtures of this kind.

Steel wool.—This consists of hair-like particles of steel. It is used in scouring certain metals and in removing varnish or paint. Different grades are numbered according to fineness, 00 being the finest. In using it the hands should be protected by old gloves or mittens.

Furniture polish.—This is convenient for rubbing up various kinds of woodwork. The United States Bureau of Standards recommends a simple kind, made by mixing 1 part raw linseed oil with 2 parts turpentine and adding a little melted beeswax if desired. Or a light mineral oil diluted with kerosene or gasoline (see p. 8) may be used for this purpose.

Floor wax.—This is used for giving a polished surface to wood floors. It should be applied in thin coats and well rubbed in with a weighted brush. The United States Bureau of Standards suggests two recipes:[3]

(1) Mix 1 pint of turpentine and 4 ounces beeswax and heat in a vessel set over hot water until the wax is melted. Remove from the heat. Add 3 ounces aqua ammonia (concentrated ammonia) and about 1 pint of water and stir vigorously until the mass is creamy.

(2) In a vessel set in hot water melt 2 ounces each of carnauba wax and ceresin, then add 3 ounces of turpentine and 12 ounces (about 1 pint) of gasoline; cool as rapidly as possible, stirring vigorously to produce a smooth, creamy wax.

In making both these polishes great care must be taken to heat them only by setting in hot water and to have no open flame in the room, for both gasoline and turpentine are very inflammable.

CARE OF CLEANING IMPLEMENTS.

Time and bother are saved if the cleaning tools and materials are kept together in a convenient place, preferably a special closet located where it can be quickly reached from all over the house (fig. 4). If possible, it is well to have on each floor a supply of some of the things most constantly used. As far as possible, cleaning tools should be put away clean and ready for use.

Brooms, brushes, and mops should be hung by strings or screw-eyes fastened to the handles so that the weight does not rest on the straws, bristles, or strings. Carpet sweepers also should be set so that the weight does not come on the brushes. The hair and lint which accumulate in brushes, especially in carpet sweepers, may be

[3] U. S. Dept. Commerce, Bu. Standards Circ. 70, Materials for the Household.

taken out with an old buttonhook, a coarse comb, or old scissors. Corn brooms may be washed in hot soapsuds, but care must be taken not to let the water rust the wires which hold the straws to the handle.

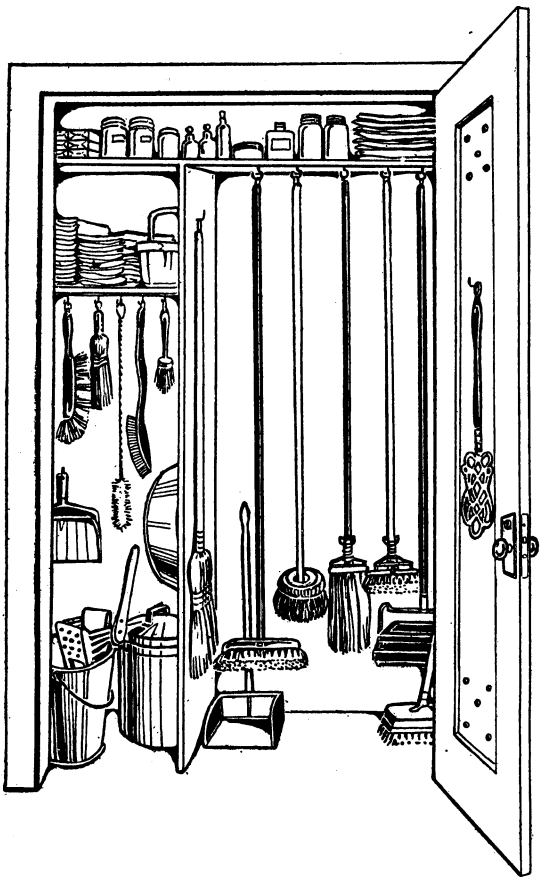

FIG. 4.—A conveniently arranged closet for cleaning tools. Housecleaning can be made easier and done more quickly with good durable tools kept in order in a convenient place. If a built-in closet is not available, a wardrobe of the less expensive kind may be used. In either case ventilation should be provided by holes in the door.

Bristle brushes may be washed with lukewarm water and a little ammonia (3 teaspoons dilute ammonia to the quart) or borax (1 teaspoon to the quart) and then rinsed in clear water. Water is likely to injure the back of a brush and to loosen the cement by which the bristles are held in place in the less expensive makes. The brush should, therefore, not be covered with water, but should be washed by sousing the bristles back and forth in shallow water; it should be dried with the bristles down or with the weight resting on the side of the brush. The drying should be done quickly, but not in an intense heat. Drying in sunshine whitens light bristles. The weighted bristle brush used in polishing floors should be washed occasionally to prevent the accumulation of dirt and wax from darkening the wood.

Mops may be washed in hot suds and rinsed in clear, hot water; they should be quickly dried. Dry mops may be oiled or oiled ones renewed by pouring a few drops of light lubricating oil or any good floor oil into an old dish or a tin box and setting the mop on this for a day or two; or the mop may be sprinkled with a little oil and allowed to stand until the oil spreads through the strings.

Dust cloths should be washed frequently, both because a little dirt comes out more easily and because dirty ones often leave as much dirt as they take up and may scratch highly polished surfaces.

The heavy woolen cloths used in polishing floors may be soaked for an hour or more in hot water and soda, using 3 tablespoons of soda or half a cup "liquid" soda to a gallon of water, and stirring the cloths occasionally with a stick; then they should be washed in hot soapsuds and finally rinsed in hot water. A little kerosene or light lubricating oil added to this last water will soften the cloths.

The oil in "dustless" cloths may be restored as directed on page 6, or a little oil may be added to the rinsing water, 1 tablespoon of kerosene or one-half tablespoon light lubricating oil being used to a quart of water.

The box of a carpet sweeper should be opened over dampened newspaper, the dirt emptied out, and the brush cleaned. The mechanism should be kept properly oiled. A vacuum carpet sweeper is cleaned in the same way, but, in addition, the bag must be taken off and emptied.

METHODS OF CLEANING.

Frequent cleaning saves time and strength in the long run and is also better for the house and its furnishings, because the fabrics and finishes receive less rubbing and wear. If dust is allowed to remain it may be ground in or covered with a grease film; in either case it will be harder to remove. Moreover, the fine particles of dirt rub against the fabrics and finishes and tend to wear them out. Different kinds of surfaces and furnishings must be treated in different ways to keep them clean and prolong their usefulness.

WALLS AND CEILINGS.

Ordinary plastered and papered walls and ceilings should be cleaned with a wall brush or a broom covered with soft cloth, such as cotton flannel. Light overlapping strokes should be used; heavy strokes rub the dirt in. Cotton batting is good for cleaning places that soil more quickly than the rest, for example, the wall over radiators, registers, and stoves. The wall should be rubbed lightly with the cotton, which should be turned as it becomes soiled.

There are commercial pastes and powders for cleaning wall papers, but, in general, these should be applied only by an expert. An amateur is likely to have a streaked wall if he attempts to use them.

The so-called washable papers used in kitchens and bathrooms may be cleaned with a dampened cloth, but water must be used sparingly; if it seeps in the paper will be loosened. Varnishing the paper in these rooms will make it more nearly impervious to moisture and steam and will prevent it from peeling.

Rough wall coverings, such as burlap, are hard to clean. The dust should be removed by brushing or with a vacuum cleaner.

Some painted walls may be washed, but as in the case of all painted surfaces the success with which this may be done depends largely on the kind and quality of the paint. In the case of ordinary oil paint, the wall should be rubbed with even strokes, using a cloth wrung out of light suds, then rinsed with a cloth wrung out of clear water, and wiped with a dry, soft cloth. If the paint is badly soiled and stained, a fine scourer, such as whiting, may be used.

Enamel paint (that is, paint mixed with varnish, which gives a hard, smooth surface and does not catch or hold dust so easily) is dulled by soap. Such paint may be cleaned by rubbing first with a woolen or cotton flannel cloth wrung out of hot water, and then with a clean, dry cloth. Spots, stains, and dirt that will not yield to hot water alone may be removed with a fine scourer, but it must be applied lightly in order not to scratch the surface.

Calcimined walls can not be washed nor can they even be rubbed with a dry cloth without streaking the finish. Recoating is for this reason preferable to cleaning.

Tiling may be cleaned by washing with warm, soapy water, rinsing, and drying thoroughly; or, when necessary, a fine scourer may be used. If water is allowed to remain on tiling it is likely to injure cement of the kind in which the tiles are set and thus to loosen them. The wall finish known as metal tiling may be cleaned in the same way as paint.

Cement walls and floors may be washed by flushing with a hose, by scrubbing, or by mopping. Moisture makes cement of this kind slippery, but does not injure it. Cement floors are usually equipped with a drain, and if properly laid the floor slants toward the drain, so that water runs off.

WOOD SURFACES.

Unfinished wood surfaces absorb grease and dirt more readily, are more likely to stain, and are harder to keep clean than those in which the pores of the wood are filled with varnish, oil, paint, or other finish. In general, a house should contain as few unfinished wood surfaces as possible. In the kitchen, for example, labor may be saved by finishing or covering the floor, by covering the table with oilcloth, linoleum, or zinc, and by painting or varnishing the rest of the furniture. Unfinished wood surfaces may be scrubbed with the grain of the wood, using small quantities of water and a mild soap, rinsed with a cloth wrung out of clean water, and wiped dry. Strong soaps, alkalis, and too much water darken wood and may soften it.

If the dirt can not be removed with soap and water, a scourer, such as fine steel-wool or powdered pumice, may be used. Unfinished

wood can be bleached with oxalic-acid solution, which is poisonous (see p. 8). The wood should be covered thinly with the solution, allowed to dry, and then thoroughly washed until all traces of the acid are removed. If grease is spilled on unfinished wood cold water should be applied at once, if possible, in order to harden the grease and prevent its spreading, then as much grease as possible should be scraped off with a knife, and the spot scrubbed with a washing soda or lye solution. If the spot appears dark, a paste made of fuller's earth and water should be spread over it and allowed to remain overnight.

Oiled floors should be swept with a soft brush and dusted with a dry or oiled mop. Occasionally they may be washed and afterwards wiped with an oily cloth. Water should be used sparingly, and care should be taken to rub the oil in well and not to use so much that a surplus is left on the surface to hold dust and be tracked onto rugs.

Varnished and shellacked surfaces should ordinarily be dusted clean with a soft brush or cloth and polished with an oiled mop or soft cloth moistened with a few drops of light lubricating oil, lemon oil, or furniture polish. The oil or polish should be well rubbed in and any surplus removed with a soft cloth. In general, varnished and shellacked surfaces should not be touched with water. However, if badly soiled they may be wiped with a cloth wrung out of warm, slightly soapy water, wiped dry at once, and then polished with oil. The appearance of badly worn varnished woodwork may be improved by rubbing it with a good grade of floor wax.

Waxed surfaces may be cleaned with a soft dry duster, or in the case of floors a soft brush or a mop free from oil. The film of dirt and wax which darkens the surface may be removed with a cloth wrung out of warm, soapy water, or, better, with one moistened with turpentine or gasoline; the latter method brightens as well as cleans the surface, whereas water dulls and whitens wax. Both turpentine and gasoline are highly inflammable and should never be used in a room where there is a fire or a lighted lamp or candle (see p. 8). If a waxed surface has been dulled by water, the luster and color may be restored by rubbing with a warm woolen cloth or a weighted brush. Many spots on waxed surfaces may be removed by rubbing with a little turpentine and refinishing with a little wax; iron rust and ink stains may be bleached out with oxalic-acid solution (p. 8) as from unfinished wood. After all traces of the acid have been washed off and the spot is thoroughly dry, it should be rewaxed and polished.

If a floor needs rewaxing, it should be thoroughly dusted, washed, or preferably rubbed bright with a cloth moistened with turpentine or gasoline, and given a thin, even coating of liquid or melted wax rubbed in lengthwise of the grain of the wood, first with a soft cloth and then with a weighted brush. When the wax is well rubbed in

the brush should be covered with a piece of heavy material, such as carpet or burlap, and the floor polished until it has the desired luster.

Painted woodwork should, as far as possible, be kept clean by dusting rather than by washing, since the latter is harder to do and wears the paint much more rapidly. When washing becomes necessary it should be carefully done. It pays to wipe off dirt, such as that around door knobs, as soon as it appears.

FLOOR COVERINGS.

For the daily care of woolen or cotton carpets and rugs a carpet sweeper is the best tool, because it takes up lint and coarse dirt without raising dust. For more thorough cleaning some other tool must be used, as the brushes of the carpet sweeper do not go deep enough into the carpet to remove fine dirt. A vacuum cleaner is excellent, but if that is not available effort should be made to find some other thorough but comparatively dustless process. Using a dampened broom and scattering left-over tea leaves, bits of rumpled, dampened newspaper, or one of the commercial sweeping preparations on the carpet before sweeping helps to prevent dust from flying. These dampened materials must be used with caution, however, or stains will result, especially on delicately colored carpets. Wiping a carpet with a dampened cloth after sweeping removes more dust and freshens the carpet.

Small rugs should be cleaned out of doors, if possible, preferably on the dry grass or dry snow. They should be placed right side down, beaten with a flat carpet beater, swept, turned over, and swept again. Hanging rugs over a line while they are being cleaned, or holding them by the corners and shaking them, strains them badly; it may break the threads or loosen the bindings and cause the ends to ravel.

Practically all rugs, after thorough beating, may be cleaned with soap and water. Rag rugs may be washed like any other heavy material, but they must be thoroughly rinsed. Sometimes it is easier to rinse a heavy, wet rug with a hose than in a tub. Other rugs can be placed on a table and scrubbed with a brush and mild soapsuds. As each section is cleaned it should be rinsed thoroughly, and the water should be changed as it becomes discolored. Rugs washed by this method are clean, but they may shrink and lose their shape and the colors may fade and run. Oriental rugs with very long, thick pile should not be thus cleaned unless they can be dried quickly and thoroughly; if moisture remains in the depth of the pile, it may rot the threads.

Fine, smooth mattings should be swept with a soft brush and dusted with a dry mop, or if necessary, they may be washed with a

cloth wrung tightly out of warm water and wiped dry with another cloth. A carpet sweeper may be used on the heavier grass and fiber floor coverings. All grass and fiber floor coverings should be taken up occasionally to remove the dirt which sifts through in spite of frequent cleaning.

For the daily care of linoleum, floor oilcloth, and cork carpeting an oiled mop or soft brush may be used. When very dirty they may be washed with warm water and mild soap, rinsed, and wiped dry. Only a small space should be wet at a time, and care should be taken to prevent the water from getting underneath. Scrubbing linoleum, using strong soaps or powders that contain alkali, or using too much water will ruin linoleum in a short time.

FURNITURE.

Dusting furniture thoroughly and often helps to keep it in good condition. In addition, the woodwork should be rubbed occasionally with furniture polish (see p. 9), or wax, or oil, according to the original finish, and only soft dusters, free from gritty substances, should be used. Silk and chamois are excellent because they leave no lint.

The varnish on some furniture is so hard and smooth that finger marks and such soiled places may be removed with a cloth wrung out of lukewarm suds made with neutral soap, and the finish restored by rubbing with a cloth on which a few drops of light lubricating oil or furniture polish have been sprinkled. In many cases this is a good method to use on the tops of dining tables, but in general it is unwise to put water on varnished, oiled, or waxed surfaces. Painted and enameled furniture may, of course, be washed like any other surface so finished (p. 14).

For upholstery, either a vacuum cleaner or a brush is the most effective tool. A soft brush is best for velvet and velour, a stiffer one for tapestry and other strong, firm materials, and a pointed one for tufted upholstery. If convenient, upholstered furniture should be taken out of doors occasionally and beaten with a flat carpet beater, or it may be cleaned indoors by the following method. The article to be cleaned is first covered with a cloth that has been dipped in water and wrung as dry as possible, then beaten with a flat beater, the dust being taken up by the damp cloth.

Leather furniture coverings last longer and look better if rubbed occasionally with castor oil or a commercial leather polish to restore the oil that gradually dries out. The liquid should be well rubbed in and any excess wiped off the surface; otherwise this film of oil will collect and hold dirt which will darken the leather and soil whatever touches it.

The crevices in wicker furniture are difficult to clean, but fortunately dirt does not cling to it as to upholstery. Brushing followed by dusting seems to be the best treatment.

WINDOWS AND MIRRORS.

Daily or at least frequent dusting of windows and mirrors keeps the glass clean and bright a long time without special cleaning. When more thoroughgoing treatment is necessary, either liquid or dry cleaners may be used.

The most common liquid cleaners are clear water or water to which washing soda, borax, ammonia, kerosene, or alcohol has been added. Clear alcohol is excellent for use in cold weather, because it does not freeze, but it is too expensive for ordinary use. Soap should be used in a very light suds, if at all, for it is likely to leave a film on the glass. With liquid cleaners good results depend quite as much upon the method of application as upon the cleaner itself. The best general method is to dip a cloth in the liquid and wring it as dry as possible; then, to wash the glass with this cloth, using even overlapping strokes, and dry it by rubbing briskly with paper, cloth, or chamois. If the liquid dries without rubbing, especially if it has been put on freely, the window will be streaked. A quick method, particularly adapted to large windows, is to use water freely and wipe it off with a rubber "squeegee" drawn smoothly and evenly across the pane with overlapping strokes. Special care must be taken to protect the woodwork from the water.

For dry cleaning, whiting or a commercial powder of the same fineness is used. The powder is made into a paste with water or alcohol, applied thinly to the glass, allowed to dry thoroughly, and then rubbed off with a soft cloth or paper. This is an easy method of obtaining clear windows and is especially good to use in winter, as the moisture evaporates before it freezes. It is also a good way of cleaning mirrors, picture glass, and the like, which might be injured by water. It is, however, a dusty process and should be used before cleaning a room.

Paint or varnish spatters on glass may be dissolved with turpentine or alcohol or rubbed off with a dull knife.

CHINA, EARTHENWARE, AND GLASSWARE.

Dishes and ornaments made of these materials are usually cleaned by washing in hot water and soap, rinsing in clean hot water, and either wiping dry with a clean cloth or draining dry in a place free from dust. They should never be quickly heated or cooled, because sudden changes of temperature are likely to crack them. Special care must be taken with glass to have the last water clean and the

cloth both clean and free from lint. Strong soap or soap powder should not be used on articles decorated with gilt, because these cleaning materials may contain chlorin, which is injurious to gilt. Alkalis may sometimes affect other colors. Even the most careful washing will gradually wear off many kinds of colored decoration, especially those in gilt. Hard rubbing and long soaking and the use of any cleaning agent, except water and suds of mild soap, should, therefore, be avoided in the case of choice pieces.

Deeply cut glass may be scrubbed with a small brush and soapy water or water containing a little ammonia, and then rinsed in clear water, and rubbed dry. The inside of vases and bottles may be scoured by shaking a little bird shot or a few small, hard buttons and soapy water about in them, or by the use of special bottle brushes.

Bric-a-brac and dishes so shaped that parts can not be easily reached often add unnecessarily to the work of cleaning.

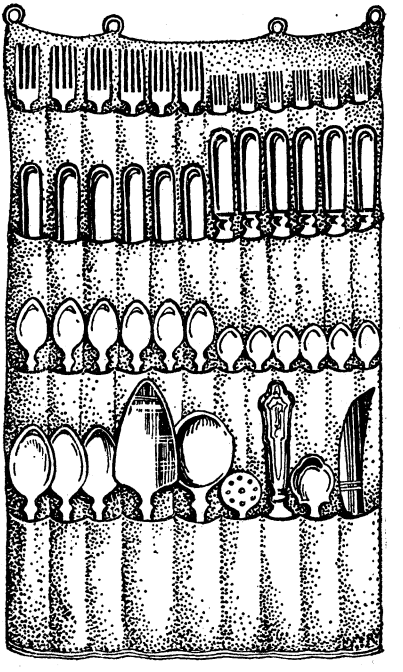

FIG. 5.—Case for silver. A case of this sort made of red or gray cotton flannel and hung on the wall or door of a cupboard in or near the dining room is very convenient for silver in every-day use. The pieces of silver can not rub against each other as they do when placed together in a drawer or box, and it is possible to tell at a glance whether any are missing.

SILVER.

The tarnish on metals is due to the action on the metal of moisture, air, food, or other substances. Different metals are affected by different substances.

The tarnish on silver is silver sulphid and is due to the sulphur compounds in the air where coal and gas are burned, also in many foods, in wool, in rubber, and in some bleached and dyed materials. This is the reason silversmiths avoid white cotton flannel for their cases for silver. Dryness prevents tarnishing somewhat, and so camphor, which absorbs moisture, is sometimes put into the silver drawer. Silver may be cleaned by the use of frictional agents, by boiling it in a strong alkaline solution, or by electrolysis.

The frictional materials used are fine whiting, rouge, and commercial pastes or powders. The noncommercial powders are mixed

to a paste with water, ammonia, or alcohol, applied to the silver, allowed to dry, and then rubbed off with a soft cloth, chamois, or a brush. The result is bright, lustrous silver. Prepared cloths, sold under various trade names, also clean by friction. They are usually cotton flannel treated with a cleaning mixture, and are convenient but relatively expensive.

The alkaline solution for cleaning silver is made by dissolving 4 teaspoons of borax, 3 teaspoons washing soda, or 2 teaspoons lye (caustic soda) in 1 quart water. The silver is placed in an old kettle or pan, covered with this solution, boiled for 10 minutes, and cooled in the water.

One method of removing the tarnish from silver by electrolysis is the following: Fill an enameled or agateware kettle partly full of water in which has been dissolved 1 teaspoon of either washing soda or baking soda and 1 teaspoon salt to each quart of water, heat this solution to the boiling point, put in strips of aluminum or bright zinc, add the tarnished silver, and boil it. The silver must be covered completely by the water and each piece must be in contact with the zinc, either directly or through other silver. When the tarnish has disappeared, the silver should be removed from the kettle, washed, and dried with a clean, soft cloth. An aluminum kettle may be used, but it soon corrodes and must be cleaned, as only a clean, bright kettle serves the purpose. The zinc also grows dull and then is less active; it may be cleaned in water containing a little hydrochloric (muriatic) acid, which is very poisonous and must be handled with extreme care. Various commercial devices for cleaning silver by electrolysis are on the market and may be used in place of the zinc or aluminum strips.

Silver cleaned either in an alkaline solution or by electrolysis lacks luster, which cleaning by friction gives. It may be made bright, however, by a little rubbing.

COPPER, BRASS, AND BRONZE.

The tarnish on copper, brass, and bronze is copper carbonate. It may be removed by friction, or it may be dissolved in weak acids.

Rottenstone mixed with oil to a creamy consistency is the common frictional agent used on these metals. After this cleaner has been applied, the metal should be polished with a soft cloth. A final rubbing with dry rottenstone or whiting will give the metal an even brighter luster.

Oxalic-acid solution, buttermilk, or vinegar, especially when warmed, quickly dissolves the tarnish on these metals. All traces of these cleaning agents must be removed, however, or the metal will tarnish again very quickly. Washing the metal in water, drying it,

and rubbing it with dry whiting is the best way to remove the acid. The whiting not only takes up moisture but gives the metal a brighter luster than when acid alone is used.

ALUMINUM.

Aluminum does not tarnish easily in ordinary use, but one precaution should be observed in cleaning. Alkalis discolor aluminum; therefore it should not be washed with strong soap, nor should scouring powders containing free alkali be used on it. Discoloration on aluminum may be rubbed off with whiting or fine steel wool (grade 00) or dissolved by the acid of vinegar or by dilute oxalic acid (see p. 8). These acids must be thoroughly washed off the aluminum. Some special preparations for cleaning aluminum are on the market.

NICKEL.

Nickel and nickel-plated articles do not tarnish so readily as silver. Washing them frequently with hot soapy water and drying them with soft cloth or paper will usually keep them in good condition. Whiting or some other fine scourer may sometimes be used to brighten nickel that has become dull, but such a condition often means that the surface is scratched or the plating broken. Replating is the only remedy in such cases.

IRON AND STEEL.

The rust on iron and steel is different from the tarnish on other metals in that it flakes off, thus exposing another surface to the action of the air and moisture. If this process of oxidation continues long enough, the metal may be eaten away entirely, or "rust out," as is commonly said. Keeping iron and steel dry and brightly polished is the best preventive against rust. If such articles are to be stored, coating the surface with paraffin or other fat that contains no salt or wrapping them in newspaper prevents rust. A scourer, such as bathbrick, applied with a moistened cork or cloth, usually removes rust and discoloration. If this treatment is not effective, kerosene should be poured on the spot and allowed to stand for a few minutes before the scourer is applied. After the rust is removed, all traces of the kerosene should be washed off with hot soapy water and the metal dried thoroughly. Steel wool or a tinsel scrub cloth is also good for scouring rusty iron skillets or kettles. Iron kitchen utensils are smoother and are thought to wear better if they are rubbed with fat and baked before they are first used.

Galvanized iron is iron covered with zinc and does not rust nor tarnish. It is very durable and is extensively used for water pails, garbage cans, and other utensils that receive hard usage. The only

care that galvanized iron requires is washing in hot soapsuds or a weak soda solution, rinsing, and drying.

TIN.

For ordinary care, tin utensils should be washed in hot soapy water, rinsed in hot clear water, and dried thoroughly. A tin utensil that has food dried on it should be covered with a weak soda solution, heated for a few minutes, and then washed. Scraping scratches tin and may expose the iron or steel surface underneath, which may rust. tin darkens with use and this tarnish protects the tin; therefore tin utensils should not be scoured simply for the sake of making them bright.

ZINC.

Zinc darkens with use, but may be brightened by the use of scourers. Zinc on floors, under stoves, and in like places should be scoured with bath-brick and kerosene, washed and rinsed with water, and wiped dry. Zinc on tables, or wherever likely to come in contact with food, should be scoured with bath-brick and water. Acid, as in vinegar or lemon juice, may be used to remove stains on zinc, but should be thoroughly washed off; otherwise the zinc will tarnish again very soon.

PEWTER, BRITANNIA WARE, AND GERMAN SILVER.

All these metals are soft, and only very fine scourers, such as fine whiting, rouge, or fine rottenstone mixed with oil, should be used on them.

LACQUERED METALS.

Lacquered metals do not tarnish, for the metal is protected from the action of air and moisture by a shellac preparation. Metals treated in this way need only to be dusted frequently, and occasionally wiped with a cloth wrung out of warm soapy water and thoroughly dried. If the lacquer cracks, the only remedy is to remove it with alcohol and relacquer the exposed surface.

ENAMELED WARE AND AGATEWARE.

Enameled ware and agateware are made by coating iron or steel with enamel or glaze. The durability of enameled ware depends on the quality of both the foundation and the enamel and on the care given it. If the foundation is not firm, it will bend with use and the brittle enamel will crack and flake off, for example, as often happens on enameled spoons. Enameled ware should be protected from acids, from sudden changes of temperature, and from unnecessary knocks or blows. An enameled-ware kettle that has food stuck on it should

not be scraped, but should be boiled with a little soda, washed in hot soapy water, rinsed, and dried thoroughly. If this method is not effective, the dish may be scoured with fine whiting or rottenstone.

PLUMBING.

Stoppage in pipes is often due to hardened grease or to an accumulation of hair and lint. The waste pipe leading from a plumbing fixture should be thoroughly flushed after using in order to carry the waste out of the house pipes and leave the trap full of clean water. A trap in a waste pipe is a curved section so arranged that water remains in it and forms a seal that prevents the passage of sewer gas into the house. If the water left in the trap is not clean, decomposition may take place and odors and gases may come from the impurities in the water itself. Precautions should be taken to prevent oil and grease from going down the waste pipe from the kitchen sink, because being lighter than water they tend to remain floating on the surface of the water in the trap.

Occasionally more than cold or even hot water is necessary to clear out the accumulated grease, lint, miscellaneous dirt, and bits of refuse. Washing soda is ordinarily sufficiently strong for bathroom pipes and may be used in the proportion of 1 part "liquid" soda (see p. 8) to 12 parts hot water, or 1 pound of dry soda thoroughly dissolved in 3 gallons of boiling water. The drainpipe from the kitchen sink may sometimes need a stronger cleanser, even if it is thoroughly cleaned and flushed after each dishwashing, and for this purpose caustic potash is efficacious but must be carefully used. The hands must be protected from it, and it must not be allowed to touch porcelain or porcelain-lined sinks, because it may destroy the glaze. One pound of crystals dissolved in 2 quarts of water by stirring with a wooden stick should be poured down the drain. About half an hour later the pipe should be flushed with clear water. Caustic soda, although sometimes recommended, is not suitable for this purpose, because it is likely to unite with the grease and form a hard soap which is difficult to remove from the pipes.

Fine scourers may be used on all fixtures. For porcelain and enameled iron fixtures, kerosene and whiting are especially good; the kerosene cuts the grease, and the whiting supplies the abrasion. Some of the commercial cleaning preparations used for enameled and porcelain fixtures contain scourers so gritty that they scratch the surface and thus make it harder and harder to keep clean. Nothing coarser than whiting should be allowed.

Bathroom fixtures should be cleaned daily. Tubs and bowls should be scrubbed with a fine scourer or with water containing a little kerosene, rinsed with clear hot water, and wiped dry. The stains made by

water containing an excess of iron may be removed from porcelain or porcelain-lined tubs and bowls with oxalic-acid solution, which is a poison and must be entirely washed off. The overflow pipes should be flushed occasionally with hot water, for dirt and grease are likely to collect and decompose there.

The water-closet should be kept scrupulously clean. It should usually be cleaned daily or more frequently if it gets very hard use. The bowl should be flushed, washed with hot soapsuds or soda solution and a long-handled brush, and flushed again. Then the seat, the cover, the chain, and the handle should be washed and wiped. All cloths and utensils used in cleaning the bathroom should be scalded and dried, preferably in the open air.

The crust of lime which is sometimes deposited by hard water can be removed from porcelain and porcelain-lined fixtures with hydrochloric acid. This acid is very poisonous and is also injurious to the skin and to many materials, including the metals used in plumbing, and it must be handled with extreme care. Gloves should be worn when using it. To clean the bowl of a closet, bail out as much water as possible, pour in about a pint of commercial hydrochloric acid (sometimes called muriatic acid) and let this stand for several hours, or until the crust begins to crumble when poked with a stick. Then flush with a large quantity of water. The water in the tank is not enough; more must be poured in by hand in order to dilute the acid and carry it rapidly away. In a porcelain-lined sink or bath-tub the acid must not be allowed to stand on the soiled earthenware because it may get through to the metal underneath and eat that away. It must, therefore, be applied drop by drop to the lime and flushed out with plenty of water as soon as the crust begins to crumble when pressed.

REFRIGERATORS AND FOOD RECEPTACLES.

So far as possible refrigerators should be kept clean by preventive care. Ice should be washed before it is put into the ice compartment. Food should be put into the refrigerator in clean and usually covered dishes and should never be put in hot. Anything spilled in the refrigerator should be wiped up immediately. The contents of the refrigerator should be frequently inspected to make sure that no spoiled food is left in it.

About once a week and at a time when the refrigerator contains only a little ice, it should be thoroughly cleaned. The ice and all the food should be removed. The racks should be taken out, washed in hot water containing soap or soda, rinsed, and wiped dry. If possible, the drainpipe should be removed, scrubbed inside with a long-handled spiral brush or swab, and scalded. If the pipe is not removable, it should nevertheless be thoroughly cleaned out, for it

may contain not only solid matter from the melting ice, but also slime formed by the organisms that thrive in such a dark, cool, moist situation. The small trap in the drainpipe should also be cleaned, and the drain pan should be washed and scalded. The inside of the refrigerator should be washed with hot water containing soap or soda, rinsed, and dried thoroughly. A small pointed stick like a skewer should be used to clean the corners and seams.

So-called "iceless" refrigerators should be cleaned as regularly as those of the ice-box type. The shelves should be washed and sunned, and, if possible, two sets of curtains should be provided so that each can be washed and sunned every other week. Food safes, bread boxes, and other receptacles for food should likewise be regularly washed, scalded, and aired to prevent mold and decay of their contents.

STOVES.

The outside of all stoves should be wiped frequently with a cloth, soft paper, or cotton waste. Grease may be washed off with soap and water. Rubbing the stove with a soft, thick cloth moistened with a few drops of kerosene or light lubricating oil will keep it in good condition, though not polished. For cookstoves especially, many housekeepers consider this sufficient and prefer it to blacking, because substances spilled can be more easily washed off, and flatirons and the bottoms of kettles are cleaner than if stove polish is carelessly used.

If blacking is used it should be applied when the stove is slightly warm, both for the sake of convenience and because some polishes are made with inflammable materials, such as turpentine. The stove should be well cleaned, covered with a very thin coat of blacking, and rubbed briskly and thoroughly with a dry brush. If a stove is blacked and polished in this way, the color should not come off on the bottoms of saucepans.

Nickel trimmings on stoves should be cleaned like other nickel (see p. 19).

Coal and wood stoves should be cleaned inside frequently and thoroughly, in order to save heat and fuel. Ashes should be removed every day, and once a week the soot should be brushed from the bottom of the lids. All flues should be cleaned regularly, especially those under and on top of the oven, through which hot air must circulate to heat it.

When the burners on gas stoves become clogged, they should be taken out, brushed, placed in a large pan, and boiled in water to which washing soda has been added in the proportion of one-half pound to 1 gallon, rinsed and brushed, wiped with paper or cotton waste, fitted back in the stove, and dried thoroughly by lighting the gas. The tray under the burners should be removed and washed frequently.

The burners and chimneys on oil or other liquid-fuel stoves should be kept in order in the same way as kerosene lamps. In most makes the burners are detachable, and when they become clogged may be cleaned like those on gas stoves.

The heating elements on electric stoves may be cleaned with water and a soft brush. Any particles burned to char may be brushed out.

KEROSENE LAMPS.

Kerosene lamps must be kept clean and filled if they are to burn with a good light and without odor. The reservoir should be filled to within an inch of the top. The charred portion of the wick should be rubbed off, the char removed from the wick tube and the burner,

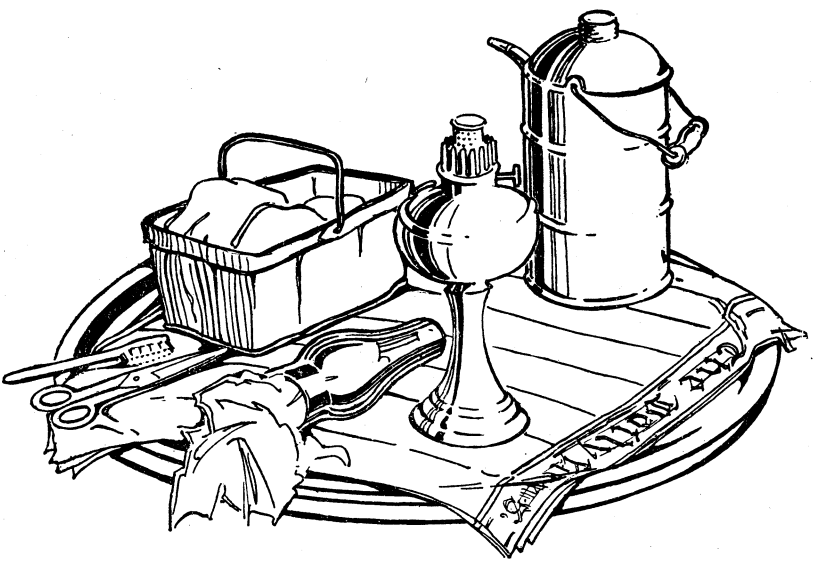

FIG. 6.—Equipment for keeping lamps in order.

and the wick turned down just below the top of the tube. The chimney should be cleaned either by rubbing with tissue paper or by washing in hot soapy water, rinsing in clear hot water, and wiping perfectly dry; if there is any moisture on the chimney when the lamp is lit, the glass is likely to crack. The outside of the lamp and the shade should be dusted. It saves trouble to keep the materials used in cleaning lamps together in a tray, box, or basket (fig. 6).

STORAGE PLACES.

It is easier to keep a house in order if it is equipped with adequate storage facilities. "A place for everything and everything in its place" is a good old adage which, if heeded, saves time and strength. Less time is wasted in looking for misplaced articles if similar ones

are stored together and if the contents of boxes, drawers, and closets are suitably labeled or listed. Things that have outlived their usefulness should not be stored, even if there is ample space, for they simply add to the material that must be cared for without giving any service in return.

Such household storage places as attics, basements, cellars, and sheds do not, of course, need to be so frequently or carefully put in order as the living rooms, but they should be gone over often enough to keep their contents in good condition and to prevent dirt from being carried from them into the other parts of the house.

The cellar or basement may be damp and therefore requires special care, both because things stored in it may spoil and because the quality of the air in it affects that all over the house. It should be regularly ventilated, preferably with a cross current of air, and open windows and doors should be screened against insects and in some cases against dirt (see p. 4). Unplastered walls should be whitewashed occasionally because the light color reflects the light and the whitewash is a germicide. In most cases the boxes or shelves in which things are stored should not be set directly on the floor, but raised on racks or blocks of wood to avoid dampness and mustiness. Old newspapers, magazines, and paper boxes should not be stored here because they tend to absorb moisture.

Compact and orderly arrangement in a clothes closet makes cleaning easier. Dresses, coats, and like garments may be kept on hangers on a rod across the closet, and shoes may be kept on a shelf near the floor of the closet. The clothes closet should be aired each day; leaving the door open every night is a good plan. Occasionally everything stored in the closet should be taken out, and floors, walls, and shelves thoroughly cleaned. Dusty closets are likely to harbor moths.

GENERAL DIRECTIONS FOR CLEANING A ROOM.

Cleaning a room according to a definite plan will save labor because the different steps in the process will not need to be repeated. When rooms near together are to be cleaned on the same day, it is often easiest to get all of them ready, then clean them all, and finally put them all in order.

Sweeping and dusting should be made as dustless as possible, for the object is to remove dust, not to scatter it. In sweeping, the strokes should be firm and even and taken in such a way that the broom or brush is kept on the floor most of the time and not flirted through the air. The dust cloth should be held in a fairly compact mass, so that the surface to be cleaned is wiped or polished and at the same time the dust is held by the cloth.

Small pictures and bric-a-brac should be dusted and removed from the room or placed in a pile and covered.

Draperies and portieres should be taken down or pinned up.

Furniture, mirrors, and pictures should be dusted and covered with cloths.

Radiators or registers should be cleaned. Each register should be lifted out, placed on a newspaper, and dusted thoroughly with a brush and an oiled cloth. The hot-air pipe should be brushed and the screen cleaned. The opening should be covered with newspaper and the register placed over it to prevent dust from dropping down.

The grate, the stove, or the fireplace should be cleaned.

The walls and ceiling and the baseboards should be brushed and dusted.

The floor and floor coverings should be cleaned according to the kind.

While the dust is settling, spots should be removed from the woodwork and the windows washed if necessary (see p. 16).

The covers may then be removed from pictures and furniture, and should be shaken out of doors if possible.

Then the room and furniture should be dusted thoroughly, beginning at the top of the room and working down.

When a room is cleaned with a vacuum cleaner, the order of proceeding is different. The room is first dusted, then the vacuum cleaner is used on upholstery, hangings, walls, and carpets or rugs, and finally the floor is dusted. By this method of cleaning fewer articles need to be moved, no dust is scattered, and more dirt is actually removed. A vacuum cleaner, therefore, saves labor, even though with some types part of the work is harder than sweeping.

HOUSEHOLD PESTS.

Insect and animal pests are not only disagreeable, but in many cases a menace to health and injurious to the house and furnishings. Scrupulous cleanliness everywhere on the premises is the best preventive, but in addition the following precautions should be taken: Screening windows and outside doors; filling cracks and holes in floors and walls; clearing up all crumbs and bits of food promptly; leaving no food uncovered; keeping garbage in closed receptacles and insisting on its prompt disposal; removing or disinfecting all decaying animal or vegetable matter in or near the house; covering rain barrels and allowing no other stagnant water in or near the house.

In spite of all precautions, insect and animal pests frequently get into a house and must then be exterminated or controlled. Poisoning, trapping, fumigating, and the use of repellents are some of the methods employed. Unfortunately, some of the most efficacious are dangerous to human beings and should be used only by responsible persons. Poisons should never be placed where they can be taken by accident, and special care should, of course, be used to keep them

away from children. Inflammable or explosive materials such as gasoline and benzine should be handled with the usual precautions (see p. 8).

Ants.—Ants are attracted by various food substances, especially fats and sugars; therefore these foods should be kept in closed containers and crumbs or small amounts spilled on shelves or tables cleaned off at once.

The most effective way of ridding a house of ants is to find and destroy the nest by treating it with carbon bisulphid, benzine, gasoline, or kerosene. Or, if the nest itself can not be found, oftentimes the ants may be traced to the opening or crack through which they enter. Squirting kerosene into it or plugging it with cotton saturated with the oil will in many cases drive them away.

A temporary expedient for controlling ants is to moisten small sponges with sweetened water and place them where the ants are most numerous. Attracted by the sugar they will crawl into the sponges and may be killed by dropping in boiling water. The sponges should be baited again with the sweetened water, and, if necessary, set in different places until the colony leaves the house.

A more effective but also more dangerous method is to moisten the sponges with a sirup made by dissolving 1 pound of sugar in 1 quart of hot water and adding 125 grains (about ¼ ounce) of arsenate of soda. Some of the ants apparently carry this poisoned liquid back to the nest and feed it to the others there, thus gradually killing the entire colony. This mixture must be used with the greatest care, as it is poisonous to both human beings and domestic animals.

Bedbugs.—Kerosene, gasoline, and benzine when forced into cracks or crevices infested by bedbugs are effective in controlling them. Successive applications should be made at intervals of 3 or 4 days for 10 days or 2 weeks so that the bugs hatched in the intervening periods may be killed.

Boiling water kills both bugs and eggs, but it can seldom be used, for it injures paint and varnish. A solution made of 1 part corrosive sublimate to 5 parts boiling water is also effective and may be used to wash furniture and woodwork. Corrosive sublimate is a deadly poison and must be used with extreme care.

Fumigating rooms with sulphur will also kill many bedbugs but can not be depended upon for extermination. Sulphur fumigation is never advised for rooms containing fine wall papers or valuable furnishing, because it tends to bleach colors.

Carpet beetles, "buffalo bugs," or "buffalo moths."—Carpet beetles are difficult to exterminate once they become established in a house in which the floors have carpets tacked over them. Bare floors with rugs do not offer them the same advantages for hiding and breeding.

If these pests are found, the carpets should be taken up, thoroughly cleaned outside of the house, sprayed with gasoline or benzine, and, if possible, aired and sunned. The floor should be thoroughly scrubbed with soapsuds, special attention being given to cracks and crevices along baseboards, and sprayed with gasoline, benzine, or kerosene. Before the carpet is replaced the cracks should be filled with a crack filler. Closets infested with these beetles should be scrubbed and sprayed in the same way as floors. Hydrocyanic-acid gas and sulphur fumes are also effectual in exterminating carpet beetles.

Cockroaches or waterbugs.—Several varieties of these are prevalent in various parts of the country. They are usually attracted by dampness, bits of food and trash of all kinds, and are particularly difficult to get rid of where one can not control conditions throughout the building. Sprinkling borax, sodium fluorid, or pyrethrum freely and persistently day after day wherever cockroaches appear or are likely to hide seems to be a fairly successful method of extermination. Of all powders sodium fluorid is the best.

Small dishes filled with a paste made of plaster of Paris, flour, and water placed where the roaches have appeared is another effective method. Still another good method, which has the added advantage of placing the poison where it can not be accidentally touched by a person or a household pet, is to put daubs of phosphorus paste on the inside of small tubes of paper.

Fleas.—If a room becomes infested with fleas, the carpet or rugs should be taken out of doors, cleaned, and sprayed with benzine or gasoline. The floor should be washed with soapsuds, special attention being given to cracks between boards and along baseboards, and rubbed or sprayed with gasoline, benzine, or kerosene.

Flies.—So far as possible flies should be kept out of the house by the use of screens; if they do get in, every effort should be made to drive them out or kill them. Flytraps, fly paper, insect powder, and poisons are used. One of the best means of killing flies is to place a solution made of 1 part formaldehyde to 10 parts water in shallow dishes about the house. A piece of bread in each dish will make the bait more attractive.

Moths.—Woolen materials and garments should be thoroughly cleaned, brushed, aired, and sunned before they are put away, in order to dislodge any moth eggs or larvæ on them. Sealing woolen garments in clean, heavy paper bags will keep moths out. Tobacco, camphor, naphthalene, cedar, and tar are all repellents for moths, and are of value if garments are put away entirely free from moths and moth eggs. None of these agencies, however, can be relied on to prevent eggs and larvæ left in the garment from developing and eat-

ing the woolens if they are left on open shelves or in very loosely constructed containers. Naphthalene in the form of moth balls or flakes, when fresh and used at the rate of one pound to a trunk of average size, will not only protect clothing stored in the trunk from becoming infested, but will kill infestations that by chance escape the cleaning process. Fumigation by carbon disulphid is an excellent method of immediately killing out infestations in clothing stored in tight containers and can not be recommended too highly. Directions for this are given in another bulletin of this series.[4]

If a closet becomes infested with moths, it should be sprayed or fumigated as suggested for carpet beetles.

Rats and mice.—All openings through which rats and mice would be likely to enter houses should be closed or screened. Holes should be filled up with a mixture of cement, sand, and broken glass or crockery, or covered with a sheet of metal.

Traps of various kinds are used for catching rats and mice. If a house is badly infested, traps should be set in several places at a time.

Rats and mice may also be poisoned, but such methods are usually more to be recommended for barns, poultry houses, and outbuildings than for houses, because the poisoned animals may die in the walls and foundations of the house, making it almost uninhabitable for some time. Moreover, the poisons used are extremely dangerous, and must never be placed where a person or household animal can reach them by accident. If poison must be used, barium carbonate is, perhaps, the cheapest and most effective. One way to use it is to mix 1 teaspoon of the mineral with 8 teaspoons of rolled oats, add enough water to make a stiff paste, and place this poisoned bait where the animals are known to run, using a teaspoon in a place; or the poison may be spread on fish, bread and butter, or moistened toast, and placed in the runs. Strychnine, in the form of crystals of strychnia sulphate, is sometimes employed either by embedding the dry crystals in meat or toasted cheese, or by soaking oatmeal, wheat, or corn in a strychnine sirup (1 ounce of crystals dissolved in 1 pint of boiling water and mixed with 1 pint of thick sugar sirup), but this poison acts too quickly to be advisable for use in the house.

Silverfish.—These insects are attracted by starch and are particularly injurious to books, papers, and starched clothing. Advantage may be taken of this fact in destroying them. An effective method is to mix about 1 teaspoon (three-fourths dram) of powdered white arsenic with one-half cup of flour, make a thin paste by adding boiling water, spread it on small pieces of cardboard, and place them when dry where the silverfish have been found.

[4] Farmers' Bul. 799, Carbon Disulphid as an Insecticide.

Pyrethrum and sodium fluorid are also effective in controlling these insects.

Other publications of this department giving added information about household pests are listed on page 31.

GENERAL RULES FOR EASY CLEANING.

The more important points brought out in this bulletin may be summarized as follows:

Keep dirt out of the house by cleaning the walks, steps, porches, and sills regularly and often, by screening windows and doors near the ground, and by insisting on having muddy shoes and coats cleaned or left outside.

Lessen the number of dust-collecting places, such as unnecessary cupboards, grooved and carved woodwork, floors with cracks, rough-finished walls, elaborately carved and upholstered furniture, superfluous draperies, and bric-a-brac.

Remove dirt frequently and systematically. This keeps the house and furnishings in better condition and makes the need of heavy cleaning less frequent.

Clean by taking the dirt away, not by scattering it to settle again elsewhere.

Do heavy cleaning a little at a time to avoid the hard work and discomforts of the old-fashioned spring and fall housecleaning.

Have a supply of good cleaning tools such as your work calls for and keep them in good order in a convenient place.

Use water and cleaning agents sparingly because otherwise they may spoil finishes and weaken glue, paste, or cement.

Be on the lookout for troublesome insects and animals and take prompt measures to get rid of them if they appear.

Make all the family help by leaving things where they belong and in good condition.

PUBLICATIONS OF THE U. S. DEPARTMENT OF AGRICULTURE OF INTEREST IN CONNECTION WITH THIS BULLETIN.

AVAILABLE FOR FREE DISTRIBUTION BY THE DEPARTMENT.

The Farm Kitchen as a Workshop. (Farmers' Bulletin 607.)
Removal of Stains from Clothing and Other Textiles. (Farmers' Bulletin 861.)
Fire Prevention and Fire Fighting on the Farm. (Farmers' Bulletin 904.)
Farm Home Conveniences. (Farmers' Bulletin 927.)
Water Systems for Farm Homes. (Farmers' Bulletin 941.)
Home Laundering. (Farmers' Bulletin 1099.)
Selection of Household Equipment. (Yearbook Separate 646.)
The House Centipede. (Farmers' Bulletin 627.)
Cockroaches. (Farmers' Bulletin 658.)
Hydrocyanic-acid Gas against Household Insects. (Farmers' Bulletin 699.)
Flytraps and Their Operation. (Farmers' Bulletin 734.)
House Ants—Kinds and Methods of Control. (Farmers' Bulletin 740.)
The Bedbug. (Farmers' Bulletin 754.)
Carbon Disulphid as an Insecticide. (Farmers' Bulletin 799.)
The House Fly. (Farmers' Bulletin 851.)
House Rats and Mice. (Farmers' Bulletin 896.)
Fleas and Their Control. (Farmers' Bulletin 897.)
The Silverfish or "Slicker," an Injurious Household Insect. (Farmers' Bulletin 902.)
Some Common Disinfectants. (Farmers' Bulletin 926.)
The House Rat, the Most Destructive Animal in the World. (Yearbook Separate 725.)
The Argentine Ant as a Household Pest. (Farmers' Bulletin 1101.)
Book Lice, or Psocids, Annoying Household Pests. (Farmers' Bulletin 1104.)

FOR SALE BY THE SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE, WASHINGTON, D. C.

Water Supply, Plumbing, and Sewage Disposal for Country Homes. (Department Bulletin 57.) Price, 10 cents.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1921